

XII. *A Contribution towards the knowledge of the Anthomyid genera Hammomyia and Hylephila of Rondani (Diptera).* By J. E. COLLIN.

[Read June 2nd, 1920.]

PLATES VII—X.

IN the *Hylemyia-Chortophila* section of the Anthomyidae, which includes the only too well-known "Onion-fly" and "Cabbage-Root-fly," the larvae are principally vegetable feeders; but there exists in that section a small group of species the life-history of which is intimately connected with that of various Hymenoptera—usually of the family Andrenidae. The female flies haunt the neighbourhood of the burrows which the bees make use of for breeding purposes, and, so far as is known, the larvae of the flies live upon the pollen-masses stored by the bees.

This group of flies are principally distinguished by their having a very "buccate" head with broad facial orbits (genae) and jowls (buccae), and the eyes of the females seldom very widely separated on the frons—often almost as approximated as in the males. A more complete diagnosis would be as follows:—

Eyes bare, often only very narrowly separated on the frons *in both sexes*, never very widely separated in the male, and when the frons is wide in the female, the frontalia are narrow (not wider than the frontal orbits) and without strong crossed bristles. Facial orbits and jowls wide, often very wide, giving the head a "buccate" appearance. Arista almost bare, distinctly pubescent, or rarely (*grisea*) plumose. Thorax without conspicuous dull black markings, and scutellum without dark patches at the sides. Two pairs of presutural dorsocentral bristles. Strong sternopleural bristles arranged 1:2 (male), or 1:1 (female),—never 2:2. Abdomen with more or less conspicuous tessellated markings and central brown stripe. Hind-marginal bristles strong and conspicuous. Male hypopygium not swollen or projecting dorsally above the level of abdomen. Penis often much flattened, and always with a chitinous strip each side ending in a pointed process. Projections of the last male sternite not very conspicuous and never shining black

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or highly chitinised. Legs in Palaearctic species never partly yellow. Ungues and pulvilli long in the male, but never so in the female. Female front tarsi never dilated. Wings with the anal vein continued, even if faintly, to the wing-margin, and costa extending to end of discal vein. Practically no distinct spines at mediastinal break in costa. Postical cross-vein usually distinctly oblique and often sinuate. Radial and cubital veins sometimes slightly converging towards the tip. Thoracal squamae never very conspicuously larger than the alar squamae, often much smaller.

The two genera into which this group is at present divided may be distinguished as follows:—

1. (2) Arista distinctly pubescent or even plumose. Females with eyes widely separated and true orbital bristles present (even if small), the front pair pointing forwards.

Hamomyia Rond.

2. (1) Arista bare or microscopically pubescent. Females with eyes approximated as in the males, or if somewhat separated, the orbital bristles absent. *Hylephila* Rond.

Hylemyia grisea Fln., and *Chortophila albescens* Zett., of the British List belong to the first genus. *Chortophila buccata* Fln., and *unilineata* Zett., to the second. Outside Europe species of both genera are known to occur in North and South America.

The species of *Hylephila* are superficially remarkably alike, and consequently mistakes in identification have been frequent. Further confusion has been caused by the females having been mistaken for males owing to the similar approximation of the eyes on the frons in both sexes. The most certain method of identifying the males is by an examination of the genital organs, and Schnabl must be given the credit for being the first to illustrate the remarkable specific differences exhibited by these organs. Unfortunately in some cases his identifications were wrong, while his figures fail to give a good idea of the excellent characters to be found in the structure of the aedeagus. To remedy this defect fresh figures have been prepared, and the writer has pleasure in gratefully acknowledging the help he has received from Dr. J. Villeneuve of Rambouillet in the loan and gift of specimens for this purpose.

HAMMOMYIA * Rondani, Dipt. Ital. Prodr. vi, 236 (1877).

TABLE OF SPECIES.

1. (2) Arista plumose. Only one strong supra-alar bristle over root of wing (pre-alar bristle absent). . . 1. *grisea* Flh.
2. (1) Arista pubescent. Two strong supra-alar bristles (pre-alar bristle present).
3. (4) *Male*:—Grey, with at most a very faint brown median stripe on thorax. *Female*:—Frons rather narrower (compared with width of head as 25 : 100). . . 2. *albescens* Zett.
4. (3) *Male*:—Much darker and with a distinctly 3-5 striped thorax. *Female*:—Resembling *albescens* but frons rather wider (compared with width of head as 30 : 100).
3. *sociata* Meig.

1. *H. grisea* Fallén, Dipt. Suec. Musc. 57 (1823).
(Plate VII, fig. 1.)

This large greyish species is easily recognised by the characters given in the Table.

♂. Ocellar and frontal bristles long and strong. Only a single row of bristles along oral margins. Thorax with a distinct brownish central stripe and a brown patch behind humeri and usually one on centre of scutellum at base. Abdomen inconspicuously tessellated and with a central brown stripe and slightly brownish hind-margins to segments. Hind-marginal bristles very strong. Sternopleura with a shorter finer bristle beneath both the usual strong front and hind bristles. Hind femora with a complete anteroventral row of bristles and a posteroventral row on apical half or more. Front tibiae with a strong posteroventral bristle. No bristle beneath middle tibiae. Hind tibiae with 3-4 short strong bristles behind. Wings with the postical cross-vein rather sinuate and somewhat oblique.

♀. Frons wide, almost $\frac{1}{3}$ the width of head. Orbital bristles stronger than in any other species of the genus, two pointing forwards and a smaller upper one pointing backwards and slightly outwards. Chaetotaxy of legs as in the male but no posteroventral bristles on hind femora and the bristles of anteroventral row less conspicuous. No bristles behind hind tibiae.

Length 5.5-8 mm.

* Stein has recently used the emended name of *Ammomyia* for this genus. Even if the use of the aspirate be incorrect, the inconvenience caused by the alteration of the initial letter appears to warrant the retention of the name as originally written by Rondani.

H. grisca is not a common species in Britain. Specimens have been examined captured during July and August, at Studland (Dorset), by the late Mr. Verrall; in the New Forest (Hants) by Dr. D. Sharp, Mr. C. G. Lamb and Mr. A. H. Hamm; at Golspie (Sutherland), and Waterville in Ireland, by Col. J. W. Yerbury. There is also a specimen in the Cambridge University Museum from Aberfoyle (Perthshire). Miss L. H. Huie has recorded it from Scotland, and fully described its life-history in the "Scottish Naturalist" for January 1916, pp. 13-20. The eggs are laid on the floor of the burrows of *Andrena analis* near the exit. The female fly, after watching for a bee laden with pollen, follows it to its burrow, and waits near the mouth until the bee has left, when, after a hasty examination, the fly backs into the burrow and lays an egg. The grub when hatched lives on the pollen mass in the burrow. There is only one generation in the year, the winter being passed in the pupal stage.

Mr. A. H. Hamm found this species in the New Forest about the burrows of the Andrenid, *Panurgus calcaratus* Scop., and the fossorial wasp, *Cerceris arcuaria* L.

Previously considered a *Hylemyia*, this species was first correctly placed in the genus *Hammomyia* by Schnabl.

2. *H. albescens* Zetterstedt, Dipt. Scand. iv, 1520 (1845).
(Plate VII, fig. 3.)

♂. Frons about $2\frac{1}{2}$ times the width of third antennal joint. Orbits and frontalia silvery grey in most lights. Vertical and ocellar bristles fine and hairlike. Upcurved bristles on oral margin in two rows. Thorax dull grey and usually only when viewed from behind with indications (sometimes very faint) of a narrow brown central stripe and broader side stripes from humeri to post-alar calli. A single pair of presutural acrostichal bristles very strong. Pre-alar bristle $\frac{1}{2}$ - $\frac{2}{3}$ as long as supra-alar. Abdomen distinctly tessellated and with a narrow dark brownish central stripe, and strong hind-marginal bristles. Hind femora with a complete anteroventral row of bristles, but short-haired posteroventrally. Front tibiae with two bristles behind placed fairly close together. Middle tibiae without a bristle beneath. Hind tibiae with 3-4 short bristles behind. Wings with the postical cross-vein very oblique and slightly undulated.

♀. Much resembling the male. Frons wider—slightly more than half as wide again. All bristles shorter, the upcurved bristles on

oral margin very small and uniserial. Pre-alar bristle shorter. Bristles on legs much less conspicuous; often a tiny bristle above front tibiae on apical third. Mid femora with only 1-2 very short posteroventral bristles near base instead of the 4-5 long ones of male. Hind femora with incomplete anteroventral row of bristles and these short except towards tip. Hind tibiae bare behind.

Length 3.5-6 mm.

H. albescens is more often met with than *H. grisea*. Specimens have been examined for the purpose of this paper from Hampshire, Essex, Suffolk, Cambs, Norfolk, London and Nottinghamshire, taken in June, July and August. They occur in sandy places in association with Aculeate Hymenoptera. The females are very difficult to distinguish from those of *H. sociata*, and both species occurred together to the late Mr. Verrall at a sandy cutting by Plumstead railway station near Woolwich on July 17th, 1874. Zetterstedt gives *Diodontus pallipes* as the host, and an old note of Mr. Verrall's states that Mr. Charbonnier of Bristol found *H. albescens* * ovipositing in the burrows of *Halictus nitidiusculus*. In Kertész' Catalogue the name of *albiseta* v. Roser (1840) is used by Stein for this species. In view of the fact that a still older name (*cinerea* Desv. 1830) is quoted as a synonym in the same Catalogue, which so far as the descriptions are concerned appears to have as much right to be used as that of von Roser, it is not proposed to discontinue the use in the British List of Zetterstedt's well-known name.

3. *H. sociata* Meigen, Besch. Eur. Dipt. v, 98 (1826).

Syn. *gallica* Schnbl. and Dzied., Nova Acta, xcv, 236 and 355 (1911).

(Plate VII, fig. 2.)

♂. Eyes very narrowly separated on frons by the narrow orbits and frontal stripe. Head in profile with a projecting frons, the facial orbits opposite base of antennae very wide but rapidly narrowing below. Face short and slightly retreating. Jowls with numerous upcurved bristles above oral margin in many rows. Lower part of occiput considerably inflated. The silvery frontal, and upper part of facial, orbits with distinct blackish reflections in some lights. Thorax brownish-grey with (in some lights) five

* The possibility that Charbonnier's specimens might have been the next species (*sociata*) must not be overlooked.

blackish stripes, the side stripes being broad, but they all vary according to the point of view, and when viewed from behind the intermediate stripes disappear. Scutellum also with shifting dark tessellations. Behind the humeri there are other bristles in addition to the usual intrahumeral and presutural, notably a very strong (? true posthumeral) bristle nearer the notopleural depression. Pre-alar bristle long and distinct. A pair of presutural aestoichal bristles much stronger than the others. Often a third shorter finer bristle below the usual two posterior sternopleural bristles. Abdomen light brownish- (almost yellowish-) grey, with a narrow dark central stripe. Tessellations not conspicuous, but in some lights a distinct darkening about sutures. Front femora rather densely long-haired behind; front tibiae with two bristles behind on apical half. Middle tibiae with no bristle beneath. Hind femora with a complete anteroventral row of long bristles and with 2-4 similar or even longer bristles posteroventrally on basal half; hind tibiae with 2-3 short bristly hairs behind. In other respects the chaetotaxy is as usual in this group. Wings absolutely without costal spine; cubital and discal veins slightly converging except at their extreme tips; postical cross-vein very oblique and remarkably sinuate. Squamae (subequal) and halteres yellow.

♀. Differing completely in colour from the male, being grey and remarkably like the female of *albescens*. The frons is always slightly wider, being $\frac{3}{10}$ the width of the head and approximately $\frac{1}{5}$ wider than in *albescens*. Palpi narrower at the base and more distinctly dilated and flattened about middle and more pointed towards tip than in *albescens*. The thorax is rather more distinctly striped, the middle stripe appearing in some lights to split up into two closely approximated dark lines. The abdominal stripe may almost disappear when viewed in certain lights—much more so than in *albescens*.

Length 6-7 mm.

H. sociata is here for the first time introduced as British on five females (two in the British Museum and three in the writer's Collection), after a close comparison with Continental specimens kindly supplied by Dr. Villeneuve, who has taken both sexes near Rambouillet (Seine-et-Oise). Four of the British specimens were captured by the late Mr. Verrall close to Plumstead railway station near Woolwich, in company with *H. albescens*, on July 17th, 1874; the fifth is an old specimen from Dossiter's Collection without locality. Though there is little doubt

concerning the identity of these specimens, it is to be hoped that these notes will lead to the discovery of the male in this country.

This species stands in Kertesz' Catalogue under the genus *Hydrophoria*, but it has since (1916) been correctly placed by Stein in *Hammomyia*. It is possible that Pandelle's *H. ciliosa* may prove to be a synonym.

HYLEPHILA * Rondani, Dipt. Ital. Prodr. vi, 233 (1877).

TABLE OF SPECIES.

Males.

1. (10) Middle tibiae with a bristle beneath, or (*unilineata*) somewhat anteroventral.
2. (7) More hairy species. Posterior femora with numerous long fine hairs beneath.
3. (4) Bristle beneath middle tibiae smaller and placed more anteroventrally. 1. *unilineata* Zett.
4. (3) Bristle beneath middle tibiae stronger and distinctly ventral.
5. (6) Thorax viewed from the side with 3-5 fairly conspicuous darker stripes, and with the pubescence (as distinct from bristles) long and dense. Middle femora more densely haired behind. 2. *obtusa* Zett.
6. (5) Thorax viewed from the side with an inconspicuous middle stripe only, and the pubescence shorter and less dense. Middle femora not so densely haired behind.
3. *dissimilis* Villen.
7. (2) Less hairy species. Posterior femora more bristly than hairy. Hind femora with antero- and postero-ventral rows of stouter bristles.
8. (9) Thorax seldom with any indication of a central dark stripe. Hind tibiae with only 2-3 short inconspicuous bristly hairs behind. Postical cross-vein more sinuous.
4. *personata* n.n.
9. (8) Thorax with a brown central stripe. Hind tibiae with 7-8 longer finer bristly hairs behind. Pre-alar bristle shorter and finer. Postical cross-vein straighter.
5. *unistriata* Zett.
10. (1) Middle tibiae without a bristle beneath.

* It has been suggested that this name is preoccupied in the Lepidoptera (Enum. Ins. in Mus. G. J. Billberg, 1820, p. 81). Billberg's names, however, cannot be considered valid genonyms (*v.* Walsingham and Durrant, Ent. M. Mag. 1902, pp. 163-170), so Rondani's name can stand.

11. (16) Pre-alar bristle present even if short. Only 1-2 rows of upcurved bristles along oral margin of jowls.
12. (15) Weakly bristled species. Head bristles short; very few bristles along oral margins. Ungues and pulvilli comparatively short. Hind tibiae with only 2-3 short bristly hairs behind.
13. (14) Arista practically bare. Abdominal stripe wider. Prosternal plate (between front coxae) bare or with a pair of short hairs only. 6. *brevifrons* Stein.
14. (13) Arista pubescent. Abdominal stripe very narrow. Prosternal plate with a pair of strong bristles.
7. *buccata* Fln.
15. (12) Strongly bristled species. Prosternal plate bare. Ungues and pulvilli long. Hind tibiae with a ciliation of 8-10 bristly hairs behind. 8. *sponsa* Meig.
16. (11) Pre-alar bristle absent. Small, light dove-grey species with many rows of upcurved bristles on jowls.
9. *dorsalis* Stein.

Females.

1. (10) Middle tibiae with a bristle beneath, or (*unilineata*) more anteroventral.
2. (3) Frons wider; at narrowest part more than $\frac{1}{5}$ the width of head. Bristle beneath middle tibiae small and placed more anteroventrally. 1. *unilineata* Zett.
3. (2) Frons narrower; at narrowest part much less than $\frac{1}{5}$ the width of head. Bristle beneath middle tibia distinctly ventral.
4. (7) Front tibiae with two bristles behind.
5. (6) Scutellum more densely hairy. Two distinct pre-apical bristles to front tibia. Postical cross-vein longer.
2. *obtusa* Zett.
6. (5) Scutellum less hairy at sides and bare about middle. Only one distinct pre-apical bristle to front tibia. Postical cross-vein shorter. 3. *dissimilis* Villen.
7. (4) Front tibiae with only one bristle behind.
8. (9) Pre-alar bristle strong though only about half the length of supra-alar. Postical cross-vein oblique. The middle four bristles on hind-margin of last visible abdominal segment much further from the margin than the others.
4. *personata* n.n.
9. (8) Pre-alar bristle very short and fine. Postical cross-vein more upright. Bristles on hind-margin of last abdominal segment all equally near margin. 5. *unistriata* Zett.

10. (1) Middle tibiae without a bristle beneath.
11. (16) Pre-alar bristle present even if short.
12. (15) Hind-margin of sixth abdominal segment with long strong curved bristles, which are bent down over the end of abdomen when the ovipositor is withdrawn.
13. (14) Arista practically bare. Abdominal stripe more distinct. Prosternal plate usually quite bare. 6. *brevifrons* Stein.
14. (13) Arista pubescent. Abdominal stripe narrower. Prosternal plate with a pair of strong bristles. . 7. *buccata* Flin.
15. (12) Sixth abdominal segment with no remarkable curved bristles. Frons wider (about $\frac{1}{4}$ the width of head). Postical cross-vein oblique and somewhat sinuate.
8. *sponsa* Meig.
16. (11) Pre-alar bristle absent. 9. *dorsalis* Stein.

1. **Hy. unilineata** Zetterstedt, Ins. Lapp. 675 (1838);
D. Scand. iv, 1518 (1845).

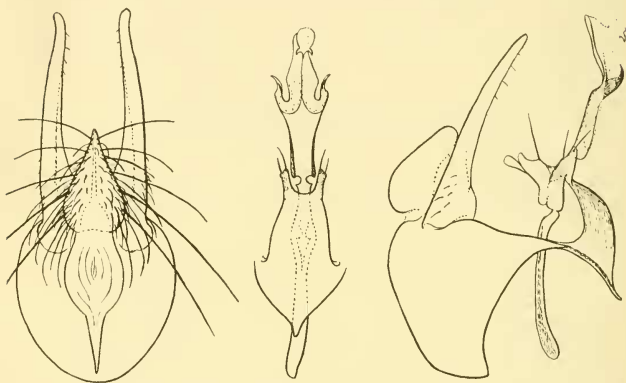
Resembling the next two species, but greyer and easily distinguished by having the bristle beneath middle tibiae smaller and placed more anteroventrally.

♂. Head very much as in *obtusa*. Thorax greyer, with a faint brownish central stripe continued over scutellum and an indistinct brownish stripe on each side; viewed from behind the thorax appears darker grey but not so dark as in *obtusa*. Acrostichals long but fine, the other fine hairs on thorax and scutellum (as distinct from bristles) less numerous than in *obtusa*. Pre-alar bristle distinct but hardly half the length of supra-alar bristle. Abdomen grey but distinctly tessellated with shifting dark tessellations and a central dark stripe; conspicuously pilose and with strong hind-marginal bristles. The genitalia are quite distinctive; the end of the penis showing some approach to the remarkable development in *dissimilis*, while the narrow side-lamellae more resemble those of *sponsa*.

Legs as in *obtusa* with the femora more pilose than setose, especially the middle femora with rather dense fringes of long fine bristly hairs posteroventrally. On middle tibiae the antero- and postero-dorsal spines at apical third are stronger than in *obtusa*, while the strong absolutely ventral bristle of *obtusa* is represented by a shorter, distinctly more anteroventral bristle. Hind legs, wings, etc., very much as in *obtusa*.

♀. Distinguished at once by the wide frons—almost as wide as in *sponsa*—and the short anteroventral bristle to middle tibiae. Width

of frons compared with width of head as about 22:100; frontal stripe about double as wide in front as at narrowest part; frontal bristles numerous (10-11 pairs); long, upcurved bristles on jowls much less numerous than in the male or in *obtusa* ♀. Thorax very inconspicuously striped but brownish about middle and on indistinct stripes or patches, which however vary considerably in colour according to the point of view. Abdomen whitish-grey with a brown central stripe and distinct brownish tessellations which remain more or less visible about base of segments from most points of view. Bristles on hind-margin of last visible segment weak. Legs much



Details of male genitalia of *H. unilineata* Zett. $\times 33$.

as in *obtusa* ♀ except for the more anteroventral, instead of ventral, bristle to middle tibiae. Wings often with the veins faintly clouded with yellowish-brown.

Length 6-8 mm.

Under this species in Zetterstedt's Dipt. Scand. Collection there are four males and three females; two of the males (one with locality label "*Kjellby*") are *H. sponsa*; the other two males (one with label "*Ernaes*" and the other "*Lapp.*") and three females (one with label "*Ernaes*") belong to the species described above. In the collection at Stockholm under *unilineata* there are a pair of *obtusa*, a male of *sponsa*, and one male and five females of the species described above; a pair of these latter bear a label "*Zett.*"

and, by kind permission of Prof. Sjöstedt, figures of the genitalia were made from the male so labelled. Zetterstedt's original description of *unilineata* applies best to the species described above, and his name must be so used in spite of the fact that such a limitation of the name is not in agreement with the views of recent writers. Stein's *unilineata* (Arch. f. Nat. lxxxi, 1916, p. 162) appears to be *obtusa* Zett., while according to the figures of the male genitalia of Schnabl and Dziedzicki's *unilineata* in "Die Anthomyiden" (1911) their specimen must have been *unistriata* Zett.

H. unilineata is at present known from Sweden only. Meade certainly added the name to the British List in 1882 (Ent. M. Mag. xix, 146), but his specimens were more probably *H. sponsa*. The name *unilineata* has also been used for *personata* by Verrall.

2. **Hy. obtusa** Zetterstedt, Ins. Lapp. 682 (1838); D. Scand. iv, 1571 (1845).

Syn. *unilineata* Stein (*nec* Zett.), Arch. f. Nat. lxxxi, 162 (1916). ? *buccata* Schnbl. and Dzied. (*nec* Fln.), Nova Acta, xcv, Pl. 5, figs. 81, 82 (1911).

(Plate VIII, fig. 5).

♂. Darker and more hairy than the male of any other British species. Compared with *personata* all the hairs and bristles are much longer, and there are longer and more numerous upcurved bristles along the oral margin on the jowls, and conspicuously longer and more numerous fine hairs (as distinct from the bristles) on the thorax. Disc of thorax distinctly darker, and, when viewed from the side or behind, with indications of five darker stripes, of which the three inner ones follow the lines of the acrostichal and dorso-central bristles, the broader side stripes being most distinct above the root of wing; viewed right from in front the whole thorax appears distinctly greyer. Abdomen less distinctly tessellated, though all markings vary according to the point of view; on the whole, however, there is a stronger tendency to darker hind-margins to segments than in *personata*. Legs much more hairy and with less distinction on the femora between the hairs and bristles. Hind coxae densely clothed in front with curved fine hairs. Front femora densely long-haired on the whole of the posterior surface, the postero-dorsal and posteroventral rows of bristles very little differentiated; middle femora with no long anteroventral ciliation but with a

posteroventral fringe of long bristly hairs as compared with the row of bristles in *personata*; similarly the hind femora have an anteroventral fringe of long bristly hairs among which some stronger bristles may be distinguished towards the tip, and numerous posteroventral long fine hairs, besides being distinctly pilose in front and (to a less extent) behind. Tibiae with the pubescence (as distinct from strong bristles) longer than in *personata*; front tibiae with two to three long fine posteroventral bristly hairs; middle tibiae also with the usual bristles as well as the pubescence longer and finer; hind tibiae with an anteroventral row of bristly hairs ending in a strong bristle towards tip, as compared with the three to four short bristles of *personata*; and with a fringe of long bristly hairs on the middle third behind. Pulvilli and ungues very long. Wings very much as in *personata*; postical cross-vein sloping and somewhat sinuous, in neither perhaps quite so much as in *personata*. Alar squamae distinctly larger than thoracal and as in *personata* with a longer fringe, whereas in *buccata* the fringes on the two squamae (except as in all cases about the angle between them) are much more equal in length.

♀. The differences between this species and *personata* are much less marked in the female sex. It is, however, normally darker—more brownish-grey—with the tomentum on cheeks and jowls usually more yellowish-grey instead of silvery-grey, a distinct central stripe on thorax, and with decided indications of darker hind-margins to abdominal segments. An important distinction lies in the arrangement of the bristles on the hind-margin of the last visible (external) segment of the abdomen; in the present species they are strong stout bristles and the middle four are, like the others, placed close to the hind-margin; in *personata* they are not so strong and the middle four are placed a considerable distance from the hind-margin, especially the middle pair. Front tibiae more usually with two posteroventral bristles, one at about middle and the other nearer the tip, hind femora with about ten anteroventral bristles strongest towards tip, and no distinct posteroventral bristles.

Length 6–8 mm.

H. obtusa is probably not rare in Britain. The late Mr. Verrall caught a male at Darenth (Kent) on April 8th, 1870, and had also taken a female in his brother's garden at Denmark Hill, London, on April 26th, 1868. Col. Yerbury caught two females at Charlton (Kent) on April 15th, 1897, while Col. S. Monckton Copeman found the females in numbers round the burrows of *Andrena fulva* at Primrose Hill, London, N.W., in May 1919. Two males and two

females have been examined taken in Nottinghamshire in May and early June by Prof. J. W. Carr and Dr. Hunter, and a very grey female was taken by Mr. C. G. Lamb in the New Forest in July 1902. The name is new to the British List.

The single type specimen of *H. obtusa* in Zetterstedt's Collection is a female, and not a male as Zetterstedt described it. This is unfortunate, because the females are much more difficult to identify than the males. One point is quite certain—it is not the female of the *obtusa* of Stein and Schnabl (a species which is renamed *personata* in the following pages). The type specimen is smaller and greyer than British *obtusa* as described above, but has the same short but fairly strong pre-alar bristle, a distinct central stripe on thorax, a tessellated abdomen with *strong* bristles on the hind-margin of last visible segment (all near the margin), and postical cross-vein somewhat sloping and sinuate; the front tibiae, however, bear only one bristle behind instead of the usual two. Specimens identical with British *obtusa* certainly occur in Sweden, such being present in the Collection at Stockholm and in Ringdahl's Collection; moreover Ringdahl had named his specimens *obtusa* after an examination of Zetterstedt's type. Schnabl and Dzierdzicki appear to have figured the male genitalia of this species as that of *buccata*, while the *H. jankowskii* described in the same work, "Die Anthomyiden," 1911, must be very closely allied.

3. *Hy. dissimilis* Villeneuve, Ent. Mo. Mag. 1920, p. 227.

(Plate VIII, fig. 6.)

♂. Much resembling *obtusa*, but distinguished by the characters given in the Table of Species and by the very different genitalia. The comparison of longer series of specimens will probably reveal other characters. It would appear to be usually smaller, and distinctly less hairy, especially the long hairs (as distinct from bristles) on the scutellum and along the sides of the thorax above the notopleural depression, are less numerous than in *obtusa*. The hairs behind front femora are rather shorter and consequently more differentiated from the rows of bristles. The hind tibiae bear only 4-5 shorter bristly hairs behind.

♀. Very similar to *obtusa* having two bristles behind front tibiae but only one distinct pre-apical bristle to those tibiae. Discal cell narrower at end, the postical cross-vein closing the cell being shorter,

scutellum less hairy, being bare about the middle of disc and with only a few hairs about the sides.

Length 5-8 mm.

H. dissimilis is at present known from only France and Algiers. Specimens in Dr. Villeneuve's Collection taken at Mascara, Algiers, in March and April, have been compared with French specimens and found to be identical.

4. *Hy. personata* n.n.

Syn. *obtusa* Stein (*nec* Zett.), Arch. f. Nat. lxxxii, 162 (1916).
Schnabl and Dzied., Nova Acta, xcv, Pl. 5, figs. 85, 86 (1911).

(Plate X, figs. 10, 12, 13.)

♂. Facial orbits rather narrower than in *obtusa*, but jowls quite as deep, consequently in profile the difference between the horizontal and vertical axes of the head is rather greater. The upcurved bristles near oral margin though shorter and less numerous than in *obtusa* are more numerous than in *unistriata*. Thorax appearing almost equally greyish whether viewed from in front or behind, and any indications of darker stripes very difficult to trace. Pre-alar bristle strong, though only about half as long as supra-alar. Abdomen distinctly tessellated except when viewed directly from behind, when all tessellations disappear leaving a sharply differentiated central brown stripe. The colour of rest of abdomen when so viewed is distinctly more yellowish-grey than in *obtusa*. Front femora with posterodorsal and posteroventral rows of long, strong bristles, well differentiated from the finer, long bristly hairs behind. Middle femora posteroventrally with 6-7 long, strong bristles on rather more than basal half only, otherwise comparatively short-haired beneath and behind. Hind femora with a complete anteroventral row of long, strong bristles; posteroventrally with 5-6 finer long bristles on basal half (or rather more) only. Front tibiae with only one posteroventral bristle; middle tibiae with one anterodorsal bristle at apical third, one posterodorsal at apical fourth, two posteroventral, the lower one at apical fourth, the upper one (which is really a posterior rather than a posteroventral bristle) slightly above middle; hind tibiae with three widely-spaced, short, anteroventral bristles, the lowest one very little longer than the other two, 2-3 anterodorsal, 3 posterodorsal—the lower one very long, much longer than the upper and longer than the middle one, and 2-3 very short fine bristles behind just above middle—only a little longer than other pubescence but more outstanding, very

similar to those in *buccata*. Wings with postical cross-vein very sloping and sinuous.

♀. For the chief distinctions between this species and *obtusa* see description of the female of the latter. Hind femora with usually only seven anteroventral bristles and with distinct posteroventral bristly hairs towards base. Hind tibiae as in the females of all species without any distinct bristles behind.

Length 5.5–8 mm.

H. personata appears to be the most common and widely distributed species of the genus in Britain. It stood under the name *unilineata* in Verrall's Collection and has undoubtedly often been mistaken for that species and for *H. buccata*. Specimens have been taken at Cuckmere (Sussex), near Dunsford (Devon) and Newmarket and Barton Mills (Suffolk) by the late Mr. Verrall; at Shoeburyness (Essex) and Wendover (Buckingham) by Col. Yerbury; at Seaton (Devon) by the Rev. A. E. Eaton; in and near Oxford by Mr. A. H. Hamm; and at Long Sutton (Hants). All captures took place in May and June. In addition Col. Yerbury found a female at Hyères (S. of France) on March 19th, 1898, and there was a single male in Kowarz's Collection under the name *unilineata* Zett. taken in Corfu. It also occurs in Sweden, males having been examined from Ringdahl's Collection and a single female in Zetterstedt's Dipt. Scand. Collection under *buccata*.

With regard to the habits of this species, Mr. Hamm caught two females following *Andrena labialis* at Boar's Hill, Brickfield, near Bagley Wood, Oxford (*v. Proc. Ent. Soc. Lond.* 1906, p. xiii); four females at University Parks, Oxford, following *Andrena nigroaeneus*; and two females at Open Brasenose Common, near Oxford, with *Andrena labialis*—one of them captured after having entered the burrow of the bee. There is also a female in the B.M. from the Verrall Collection labelled "Margate, v. 05, shadowing *Andrena trimmerana*."

5. *Hy. unistriata* Zetterstedt, *Ins. Lapp.* 677 (1838);
D. Scand. iv, 1512 (1845).

Syn. *unilineata* Schnabl and Dzied. (*nec* Zett.), *Nova Acta*, xcv, Pl. 5, figs. 79, 80 (1911). ? *inflata* Stein p.p. (*nec* Rond.), *Arch. f. Nat.* lxxxi, 161 (1916).

(Plate X, fig. 11.)

Superficially resembling *H. personata*, but thorax with a

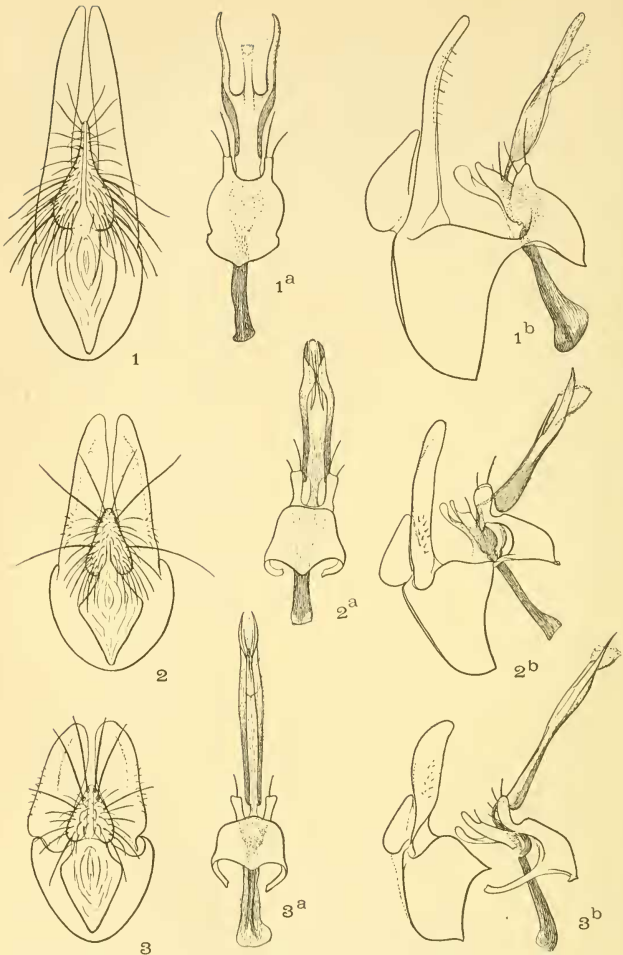
central brown stripe, pre-alar bristle shorter and finer, abdomen less distinctly tessellated, and wings with postical cross-vein more upright.

♂. Head in profile with rather smaller eyes than in *personata*, and these also rather narrower on the upper part with a consequent slight modification of shape of frons when viewed from above; thus the narrowest part of frons is nearer the ocellar triangle and extends for a less distance. Fronto-orbital bristles, bristles on vibrissal ridges and upcurved bristles on oral margin, all less numerous. Thorax somewhat yellowish-grey with an ill-defined central brownish stripe; tip of scutellum brownish. Acrostichals finer; only two strong bristles on front part of thorax behind humeri and between presutural dorsocentrals and notopleural depression, whereas in *personata* there are 3-4; the missing bristle being the outer one immediately behind humerus (? true posthumeral); a strong intrahumeral and presutural still present. Pre-alar bristle shorter and finer (only slightly differentiated from the usual short bristly hairs of disc). Prosternal plate between front coxae usually but not invariably bearing a few small bristles. Abdomen much less distinctly tessellated, and with the central brown stripe visible from any point of view, whereas in *personata* with a certain incidence of the light the stripe may even appear greyish. Legs rather more distinctly hairy than in *personata*, but less so than in *obtusa*; chaetotaxy very similar to that of *personata*, thus the hind femora have long distinct posteroventral bristles, especially about middle, but the hind tibiae are rather more strongly bristled with 5-6 anteroventral short bristles, and much longer and more numerous bristly hairs behind just before middle. There are occasionally two bristles behind front tibiae. Wings with a very small but distinct spine at mediastinal break in costa, which is absent in *personata*, and with the postical cross-vein more upright.

♀. (Only a single specimen examined.) Eyes, if anything, very slightly more widely separated than in *personata*; a distinctly smaller number of bristles on oral margin of jowls. Thorax agreeing in characteristics with that of male. Abdomen with a broader, rather ill-defined, central stripe; bristles on hind-margin of last segment strong and all almost equally distant from margin. Chaetotaxy of legs very much as in *personata*. Wings as in the male.

Length 4.5-6.5 mm.

The type of *H. unistriata* in Zetterstedt's Collection is a single male with the hind legs missing, but almost certainly identical with the species described above. There is



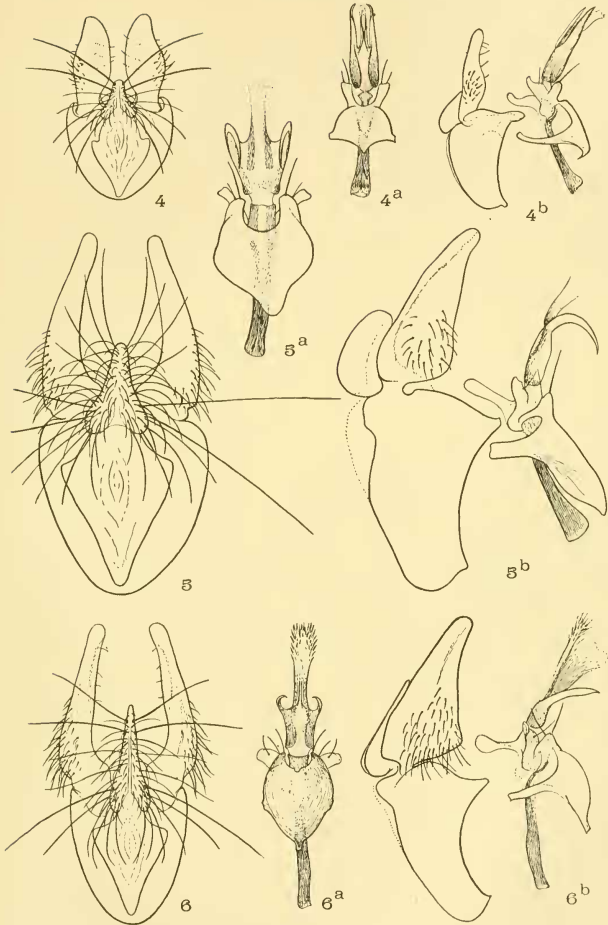
J. E. Collin, del.

MALE GENITALIA OF *HAMMOMYIA*.

1. *H. grisea*.

2. *H. sociata*.

3. *H. albescens*.



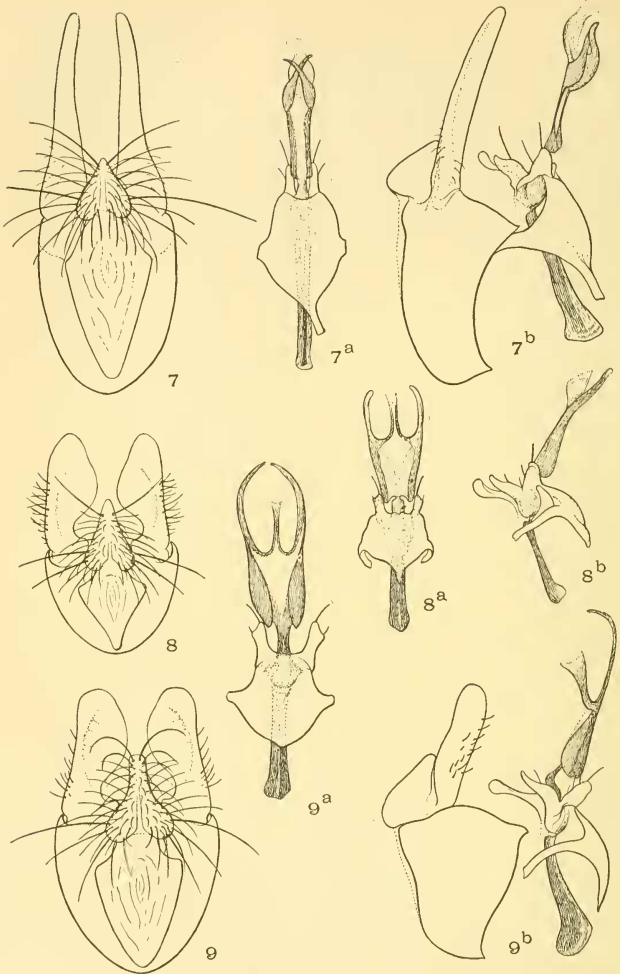
J. E. Collin, del.

MALE GENITALIA OF HYLEPHILA.

4. *H. dorsalis*.

5. *H. obtusa*.

6. *H. dissimilis*.



J. E. Collin, del.

MALE GENITALIA OF HYLEPHILA.

7. *H. sponsa*.

8. *H. brevifrons*.

9. *H. buccata*.